

AMENDED CLAIMS

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Original claims 1-34 are replaced by Amended Claims 1-33]

1. A support body (7) for an apparatus having an extended nip (N) being defined by a contact surface (13) of the support body (7) and an opposed surface (4), said support body (7)
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- has two side surfaces (69, 70) facing from each other and connecting to said contact surface (13), and a bottom surface (71) facing from the contact surface
 - 10 (13),
 - is arranged to be moved in the direction towards the opposite surface (4) by means of a loading system in order to load the nip (N) via said contact surface (13), and
 - 15 - is elastically deformable and has its contact surface (13) adaptable to the opposed surface (4) in interaction therewith,
- characterized in** that the support body (7) is made of at least two layers (53) of elastic material, said layers
- 20 being joined to a unit.
2. The support body (7) according to claim 1,
- characterized in** that each of said layers forms a contact zone of the contact surface (13) and has different
- 25 elasticities.
3. The support body (7) according to claim 2,
- characterized in** that it is made of rubber or polymer with good elasticity and good strength.
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4. The support body (7) according to claim 3,
- characterized in** that the polymer is polyurethane.
5. The support body (7) according to any one of claims
- 35 1-4, **characterized in** that the support body (7) is

adapted to operate at a load in the nip (N) which varies from 0 to 3000 kN/m.

5 6. The support body (7) according to any one of claims 1-5, **characterized in** that it has a dimension in the machine direction of 50-500 mm.

10 7. A support device for an apparatus having an extended nip (N), comprising a support body (7) as defined in any one of claims 1-6, and a holding device (8) for the support body (7) arranged to form a counterstay for said two side surfaces (69, 70) of the support body (7) and directly or indirectly form a counterstay for said bottom surface (71) of the support body (7), and that the
15 support body (7) has a top portion (31) which has said contact surface (13) and being arranged to protrude from the holding device at least in the nip-forming operation position of the support body.

20 8. The support device according to claim 7, **characterized in** that the holding device (8) has a space (16) for receiving the support body (7), said space (16) having two side surfaces (66, 67) for interaction with the opposite side surfaces (69 and 70, respectively) of
25 the support body (7), and a bottom surface (68) facing to the bottom surface (71) of the support body (7).

9. The support device according to claim 8, **characterized in** that said top portion (31) is arranged
30 to protrude from the holding device (8), that said bottom surfaces (71, 68) of the support body (7) and holding device (8) are in direct contact with each other, and that the loading system comprises a power transmitting device (50) arranged to move the holding device (8)

together with the support body (7) in order to load the nip (N).

10. The support device according to claim 9,
5 **characterized in** that the power transmitting device (50) includes hydraulic cylinders, pneumatic cylinders, jacks or similar.

11. The support device according to claim 8,
10 **characterized in** that the bottom surface (71) of the support body (7) is located at a distance from the bottom surface (68) of the holding device (8) to define an enclosed chamber (57) therebetween, and that the loading system comprises a power transmitting device including a
15 pressure chamber formed by said enclosed chamber (57) and being arranged to be pressurized in order to move the support body (7) in relation to the holding device (8) in order to load the nip (N) while the support body being elastically deformed.

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12. The support device according to claim 8,
characterized in that the bottom surface (71) of the support body (7) is located at a distance from the bottom surface (68) of the holding device (8) to define an
25 enclosed chamber (57) therebetween, that the loading system comprises a first power transmitting device (50) arranged to move the holding device (8) together with the support body (7) from a first starting position with the contact surface (13) of the support body (7) at a
30 distance from the opposite surface (4) to a second starting position with the contact surface (13) of the support body (7) located adjacent or close to the opposite surface (4), and a second power transmitting device (52) comprising a pressure chamber formed by said
35 enclosed chamber (57) and being arranged to be

pressurized with an increased pressure in order to move the support body (7) in relation to the holding device (8) to load the nip (N) while the support body being elastically deformed to form a nip-forming operation position.

13. A holding device (8) for a support body (7) as defined in any one of claims 1-6, wherein the holding device (8) is arranged to form a counterstay for said two side surfaces (69, 70) of the support body (7) and directly or indirectly form a counterstay for said bottom surface (71) of the support body (7), and that the support body (7) has a top portion (31) which has said contact surface (13) and being arranged to protrude from the holding device at least in the nip-forming operation position of the support body (7).

14. The holding device according to claim 13, **characterized in** that it has a space (16) for receiving the support body (7), said space (16) having two side surfaces (66, 67) for interaction with the opposite side surfaces (69 and 70, respectively) of the support body (7), and a bottom surface (68) facing to the bottom surface (71) of the support body (7).

15. The holding device according to claim 13 or 14, **characterized in** that said top portion (31) is arranged to protrude from the holding device (8), that said bottom surfaces (71, 68) of the support body (7) and holding device (8) are in direct contact with each other, and that the loading system comprises a power transmitting device (50) arranged to move the holding device (8) together with the support body (7) in order to load the nip (N).

16. The holding device according to claim 15,
characterized in that the power transmitting device
includes hydraulic cylinders, pneumatic cylinders, jacks
or similar.

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17. The holding device according to any one of claims
14-16, **characterized in** that the bottom surface (71) of
the support body (7) is located at a distance from the
bottom surface (68) of the holding device (8) to define
10 an enclosed chamber (57) therebetween, and that the
loading system comprises a power transmitting device
including a pressure chamber formed by said enclosed
chamber (57) and being arranged to be pressurized in
order to move the support body (7) in relation to the
15 holding device in order to load the nip (N) while the
support body (7) being elastically deformed.

18. The holding device according to any one of claims
14-17, **characterized in** that the bottom surface (71) of
20 the support body (7) is located at a distance from the
bottom surface (68) of the holding device to define an
enclosed chamber (57) therebetween, that the loading
system comprises a first power transmitting device (50)
arranged to move the holding device (8) together with the
25 support body (7) from a first starting position with the
contact surface (13) of the support body (7) at a
distance from the opposite surface (4) to a second
starting position with the contact surface (13) of the
support body (7) located adjacent or close to the
30 opposite surface (4), and a second power transmitting
device (52) comprising a pressure chamber formed by said
enclosed chamber (57) and being arranged to be
pressurized with an increased pressure in order to move
the support body (7) in relation to the holding device
35 (8) to load the nip (N) while the support body being

elastically deformed to form a nip-forming operation position.

19. An apparatus for the treatment of a fibre web (W)
5 that is manufactured in a paper or board machine,
comprising a first structural element (1) and a second
structural element (2) which is movably arranged and
having an opposite surface (4) for interaction with the
first structural element (1) while forming an extended
10 nip (N), said first structural element (1) comprising a
movable clothing (6) and a support device comprising a
support body (7) having a contact surface (13) which
defines said nip (N) together with the opposite surface
(4), said support body (7)
15 - has two side surfaces (69, 70) facing from each other
and connecting to said contact surface (13), and a
bottom surface (71) facing from the contact surface
(13),
- is arranged to be moved in the direction towards the
20 opposite surface (4) by means of a loading system in
order to load the nip (N) via said contact surface
(13), and
- is elastically deformable and has its contact surface
(13) adaptable to the opposed surface (4) in
25 interaction therewith,
characterized in that the support body (7) is made of at
least two layers (53) of elastic material, said layers
being joined to a unit.
- 30 20. The apparatus according to claim 19, **characterized
in** that said support device also comprises a holding
device (8) for the support body (7) arranged to form a
counterstay for said two side surfaces (69, 70) of the
support body (7) and directly or indirectly form a
35 counterstay for said bottom surface (71) of the support

body (7), and that the support body (7) has a top portion (31) which has said contact surface (13) and being arranged to protrude from the holding device at least in the nip-forming operation position of the support body.

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21. The apparatus according to claim 19, wherein the support body (7) further is designed according to any one of claims 2-6.

10 22. The apparatus according to claim 20, wherein the holding device (8) further is designed according to any one of claims 13-18.

15 23. The apparatus according to any one of claims 19-22, **characterized in** that also the second structural element (2) comprises a support body that has a contact surface forming said opposite surface (4), wherein both support bodies are designed according to any one of claims 1-6.

20 24. A press for the treatment of a fibre web (W) that is manufactured in a paper or board machine, comprising a first press element (1) and a second press element (2) which is movably arranged and having an opposite surface (4) for interaction with the first press element (1)
25 while forming an extended press nip (N), said first press element (1) comprising a movable belt (6) and a press device which comprises a press body (7) having a press surface (13) which defines said nip (N) together with the opposite surface (4), said press body (7)

30 - has two side surfaces (69, 70) facing from each other and connecting to said press surface (13), and a bottom surface (71) facing from the press surface (13),

35 - is arranged to be moved in the direction towards the opposite surface (4) by means of a loading system in

- order to load the nip (N) via said press surface (13),
and
- is elastically deformable and has its press surface
(13) adaptable to the opposed surface (4) in
5 interaction therewith,
characterized in that the support body (7) is made of at
least two layers (53) of elastic material, said layers
being joined to a unit.
- 10 25. The press according to claim 24, **characterized in**
that the press device also comprises a holding device (8)
for the support body (7) arranged to form a counterstay
for said two side surfaces (69, 70) of the press body (7)
and directly or indirectly form a counterstay for said
15 bottom surface (71) of the press body (7), and that the
press body (7) has a top portion (31) which has said
press surface (13) and being arranged to protrude from
the holding device at least in the nip-forming operation
position of the press body.
- 20 26. The press according to claim 24 or 25, **characterized**
in that the opposite surface (4) and/or the press surface
(13) are/is arranged to be heated.
- 25 27. The press according to any one of claims 24-26,
wherein the press body (7) is designed according to any
one of claims 1-6.
- 30 28. The press according to any one of claims 24-27,
characterized in that also the second press element (2)
comprises a press body that has a press surface forming
said opposite surface (4), wherein both press bodies are
designed according to any one of claims 1-6.

29. A method of forming an extended nip (N) in an apparatus that comprises a support body (7) designed according to any one of claims 1-6, wherein the method comprises the steps of:

- 5 - mounting the support body (7) in a holding device (8) designed according to any one of claims 13-18;
- loading the support body (7) by means of the loading system; and
- 10 - displacing the contact surface (13) of the support body (7) in the direction towards the opposite surface (4) under the influence of said loading in order to elastically deform the contact surface (13) and adaptation to the opposite surface (4).

15 30. A method of controlling the load in an extended nip (N) in an apparatus that comprises a support body (7) designed according to any one of claims 1-6, wherein the method comprises the steps of:

- 20 - designing the support body (7) of at least two layers of elastic material having different elasticity;
- mounting the support body (7) in a holding device (8) designed according to any one of claims 13-18;
- loading the support body (7) by means of the loading system; and
- 25 - displacing the contact surface (13) of the support body (7) in the direction towards the opposite surface (4) under the influence of said loading in order to elastically deform the contact surface (13) and adaptation to the opposite surface (4) in order to
- 30 obtain an extended nip (N) having a load profile in dependence of different elasticities of the layers.

31. The use of a support body (7) according to any one of claims 1-6 as a press body (7) in a press apparatus in
35 a paper or board machine.

32. The use of a support body (7) according to any one of claims 1-6 as a supporting foil for a carrying apparatus in a paper or board machine.

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33. The use of a support body (7) according to any one of claims 1-6 as a reeling support in a reel-up of a paper or board machine.

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